

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
12 February 2004 (12.02.2004)

PCT

(10) International Publication Number
WO 2004/012874 A1

- (51) International Patent Classification⁷: B05D 3/00, 3/10, 7/14, A61L 27/00, 27/28, 27/54, 31/00, 31/16, 33/00
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- (21) International Application Number:
PCT/US2003/018270
- (22) International Filing Date: 11 June 2003 (11.06.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/400,817 2 August 2002 (02.08.2002) US
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- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A1

WO 2004/012874

(54) Title: CROSS-LINKED NITRIC OXIDE-RELEASING POLYAMINE COATED SUBSTRATES, COMPOSITIONS COMPRISING SAME AND METHOD OF MAKING SAME

(57) Abstract: The invention provides a method for preparing a nitric oxide-releasing medical device. The method includes contacting an amine-functionalized silane residue with a substrate, e.g., a metallic substrate, contacting the amine-functionalized silane residue with a cross-linking agent, contacting at least one nucleophilic residue with the crosslinked amine-functionalized silane residue, and contacting the nucleophilic residue with nitric oxide gas. The invention also provides a method of contacting the cross-linked amine-functionalized silane residue with at least one nitric oxide-releasing functional group. Furthermore, the invention provides a medical device for delivering nitric oxide in therapeutic a concentration, wherein the device comprises a substrate having nitric oxide bound thereto through diazeniumdiolated nucleophiles bonded to silane intermediates. The silane intermediates are bonded to the substrate and are amine-functionalized and crosslinked.